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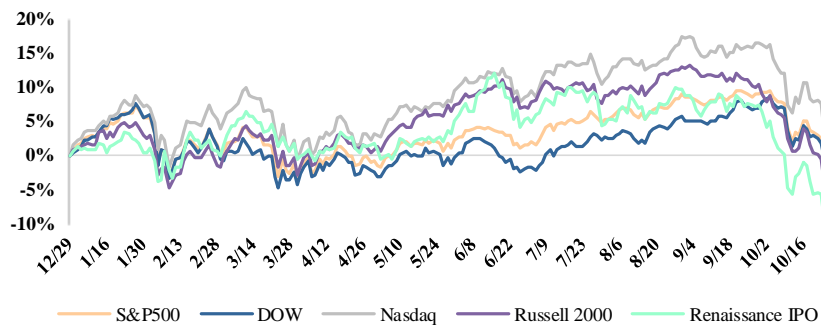


Capital Markets Update

Week Ending November 2nd, 2018

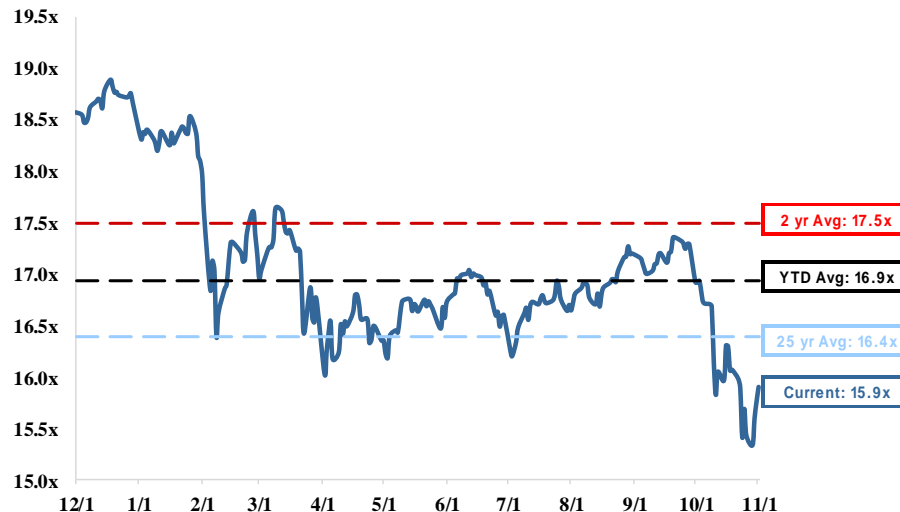
Equity Market Backdrop

YTD US Equity Market Recap



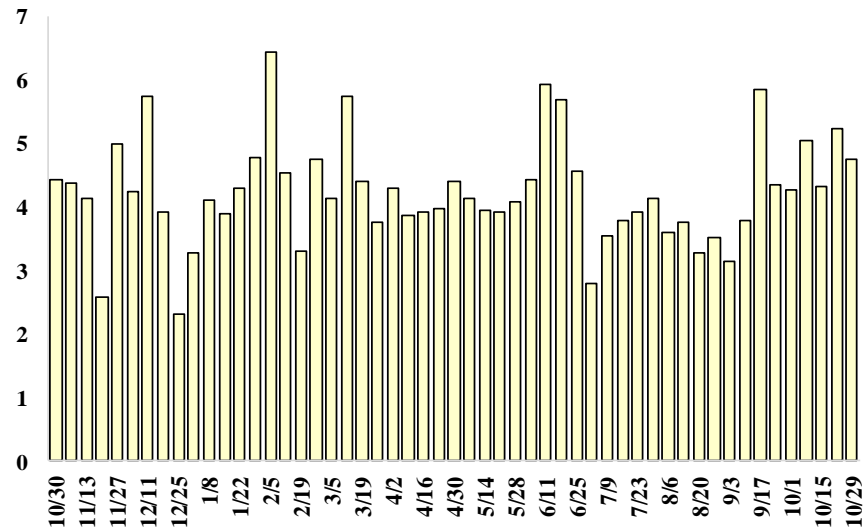
Index Name	Price	% Change			% of 52	Moving Average	
	11/01/2018	Last 7	Last 30	YTD	Week High	50-Day	200-Day
S&P 500	2,740	1.3%	-6.3%	2.5%	93.5%	2,844	2,765
Dow Jones	25,381	1.6%	-5.2%	2.7%	94.6%	25,889	25,129
NASDAQ	7,434	1.6%	-7.1%	7.7%	91.7%	7,768	7,519
Renaissance IPO	26.8	3.4%	-8.7%	-4.9%	84.8%	28.9	29.2
Russell 2000	3,840	3.0%	-6.7%	0.6%	88.8%	4,087	4,020
VIX	19.3	-20.1%	60.5%	75.2%	51.8%	15.9	16.0

LTM S&P 500 NTM P/E

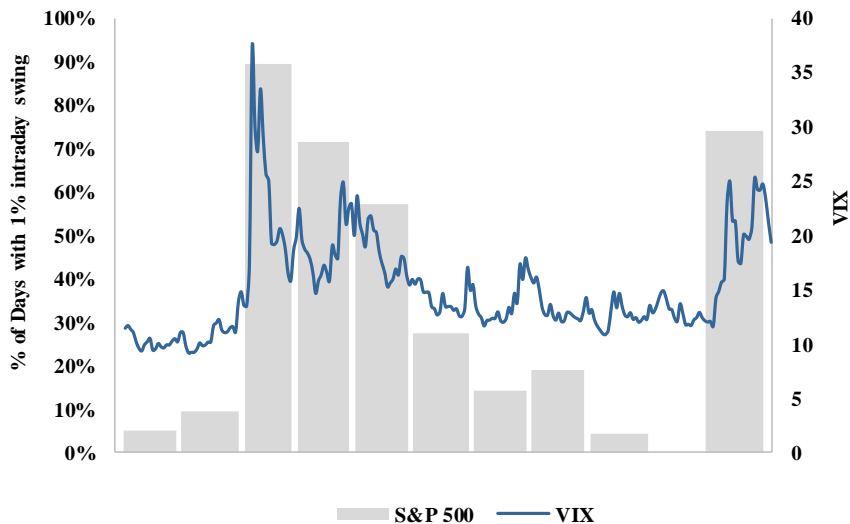


LTM Weekly Total NYSE Volume

(Billions)

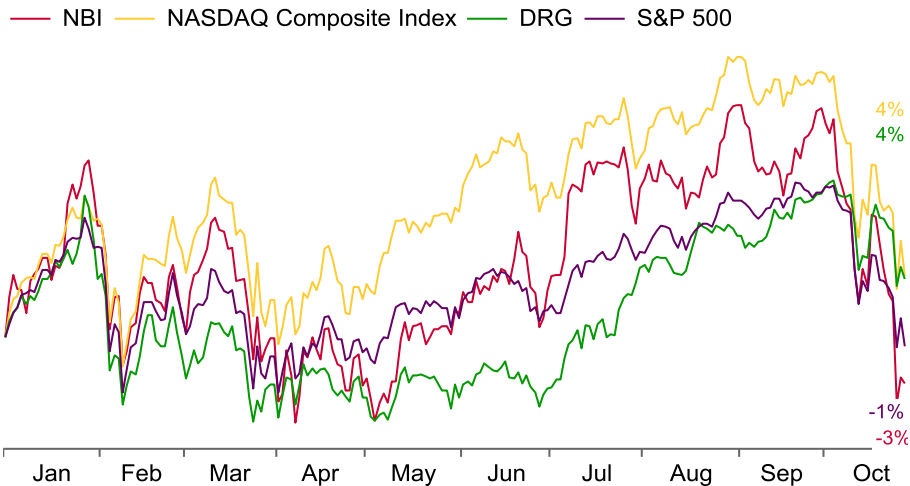


LTM Volatility

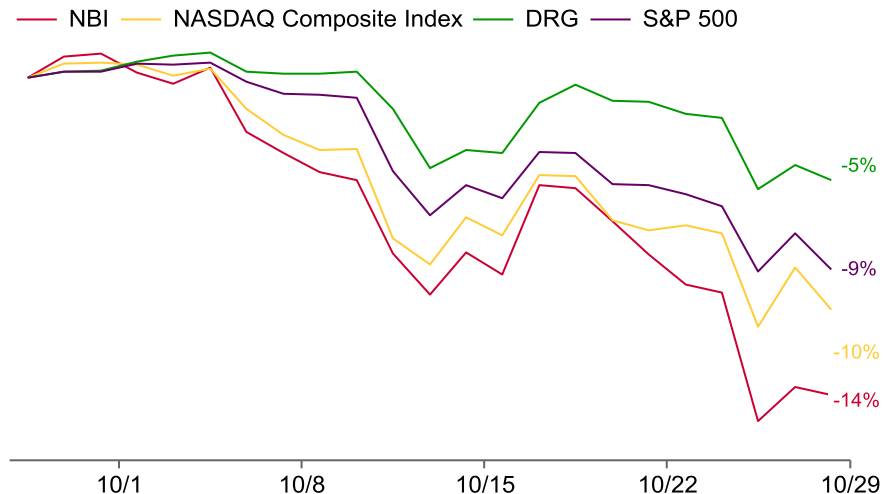


Pharma Indices: Performance YTD

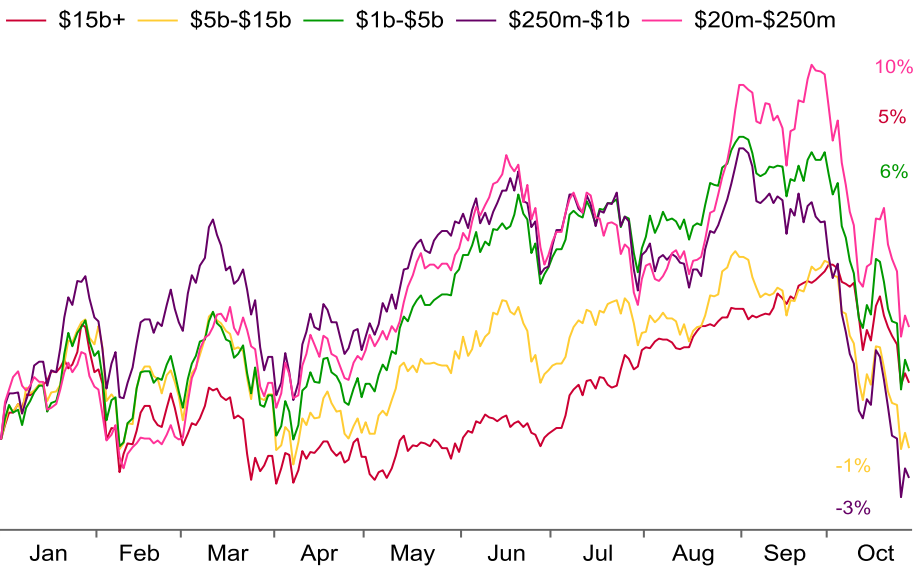
NBI vs. Other Indices YTD



NBI vs. Other Indices Trailing 4 Weeks



BioPharma Performance by Mkt Caps YTD



Broad Sector Performance

Sector	1month	3month	YTD
Health Care	-6.68%	0.43%	8.05%
Consumer Discretionary	-8.79%	-3.09%	8.75%
Consumer Staples	2.40%	4.24%	-3.32%
Energy	-11.97%	-10.79%	-6.08%
Financials	-4.76%	-5.59%	-5.61%
Industrials	-10.38%	-6.52%	-6.56%
Information Technology	-9.15%	-3.86%	9.11%
Materials	-8.00%	-8.95%	-10.92%
Telecommunication Services	-6.56%	0.25%	-9.76%
Utilities	1.16%	1.38%	0.82%



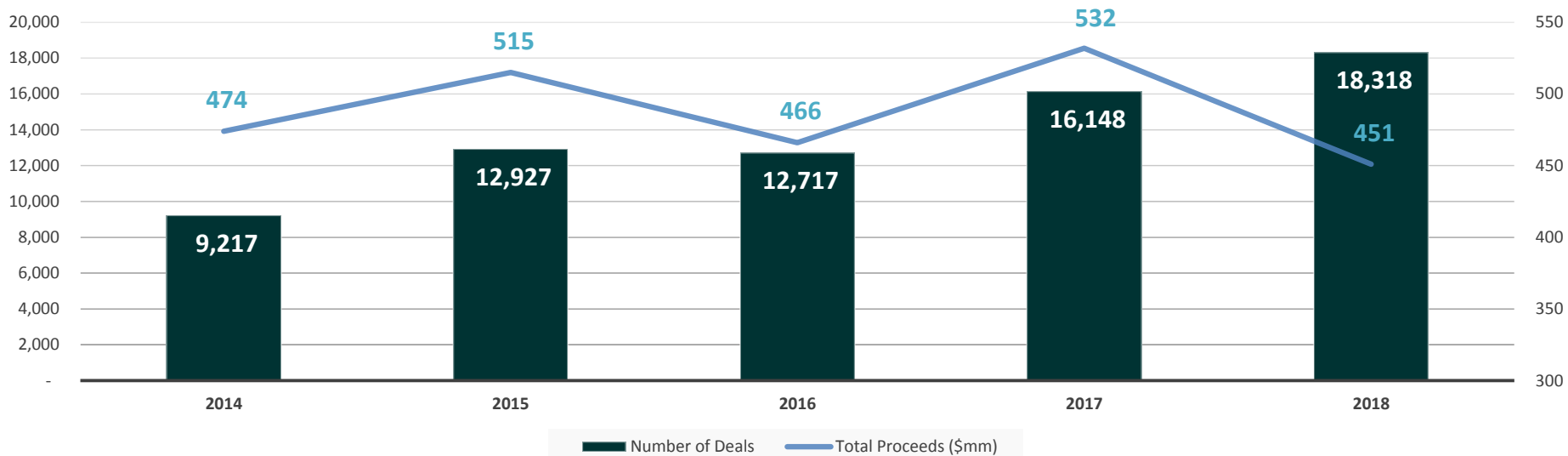
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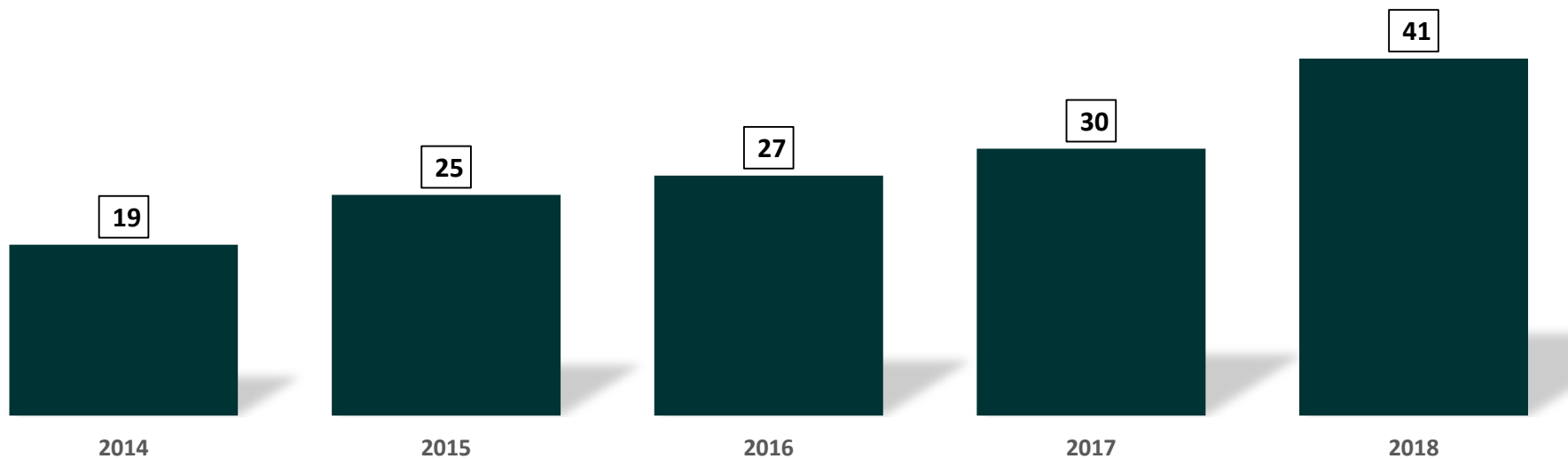
Venture Capital & Private Financings

Healthcare Private Financings: 2014 - Present

Proceeds (\$mm) and number of financings

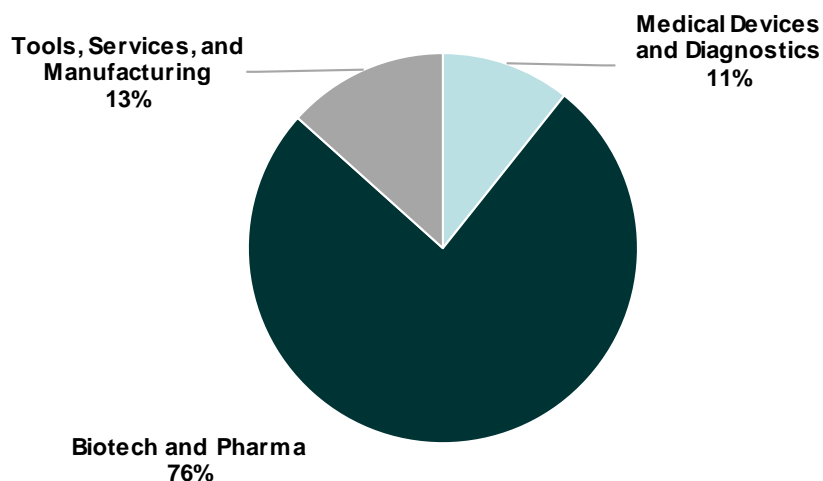


Average Proceeds (\$mm)



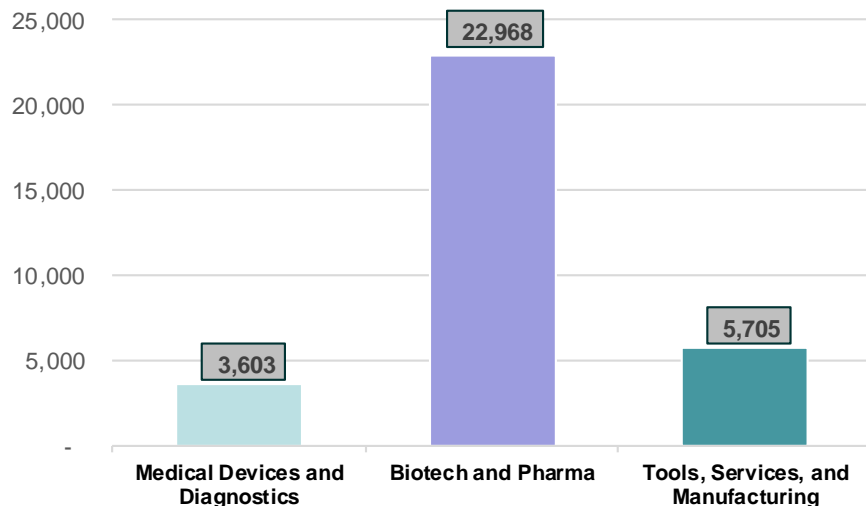
Private Financing Themes: 2018 YTD

Number of Transactions by Business Category

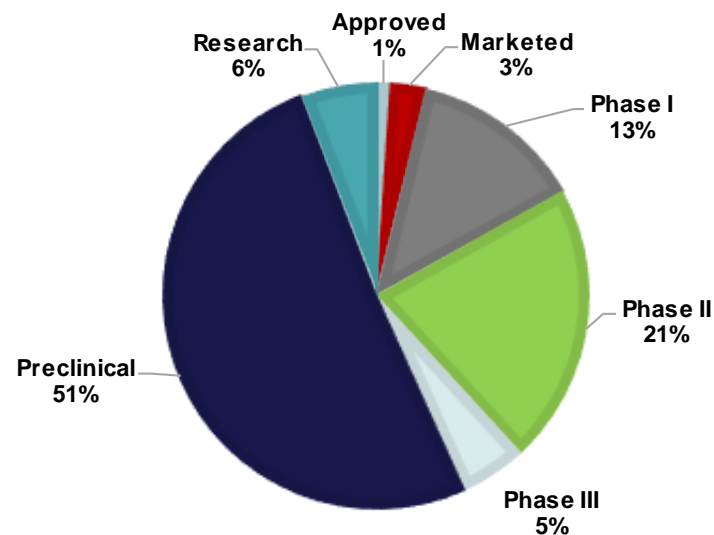


- Growing Number of Investors Investing Earlier
- Syndicated/Momentum Based Financings
- New Technologies Driving Outsized Financings and Valuations
- Challenges Recruiting Talent / Industry Moves
- Support from Marquee Sector Specialists
- 'Crossovers' as a Dominant Theme

Total Proceeds by Business Category (\$mm)



Development Stage at Financing



Top Active Private Investors: Credibility and Brand Association

Most Active Private Investors	Investments Prior 12M	Active Portfolio
OrbiMed	34	46
New Enterprise Associates	33	50
Alexandria Venture Investments	29	34
ARCH Venture Partners	26	33
Google Ventures	21	32
Foresite Capital Management	21	24
Novo Holdings	20	27
Deerfield Management	19	23
Cormorant Asset Management	19	14
F-Prime Capital Partners	18	26
RA Capital Management	18	22
Perceptive Advisors	18	20
Fidelity Management & Research	17	21
Versant Venture Management	16	23
Celgene	16	14
Vivo Capital	15	16
Polaris Partners	15	20
Temasek Holdings	14	17
Venrock	14	17
Johnson & Johnson Innovation	14	20



- Thought leaders
- Brand association
- Respect for diligence
- Ability to syndicate
- ‘Crossover’ investors



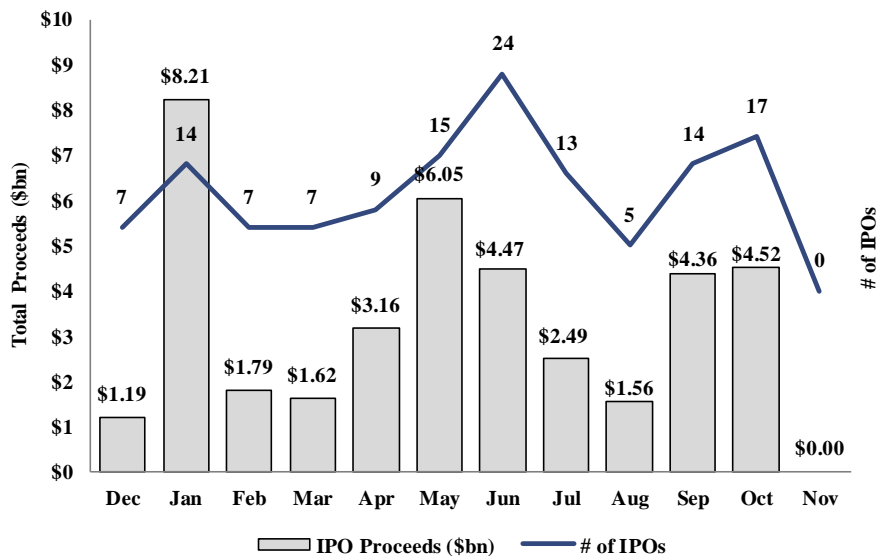
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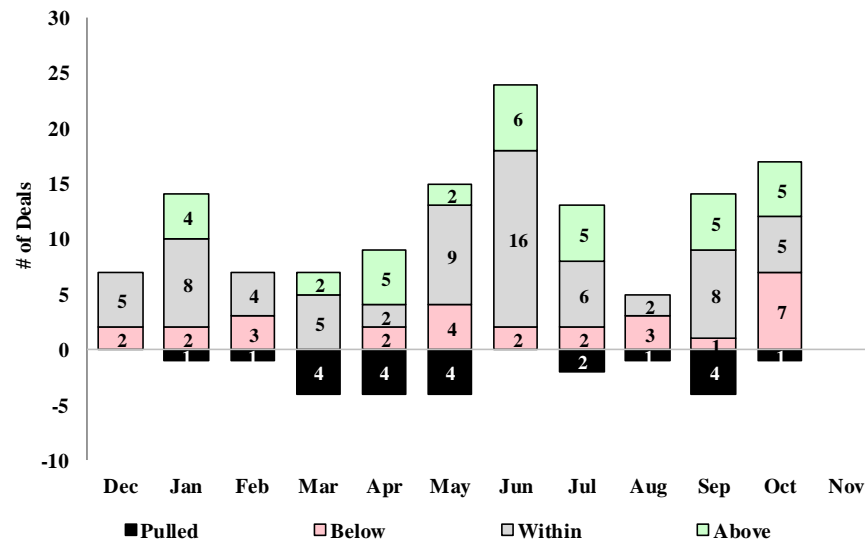
Initial Public Offerings

IPO Market Backdrop

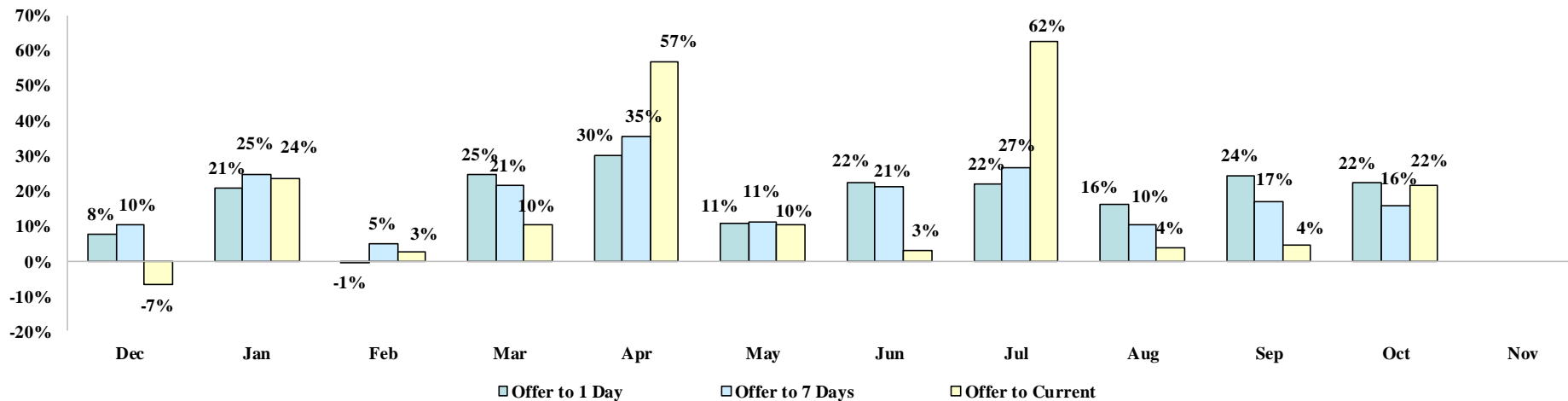
LTM IPO Issuance (1)



LTM IPO Pricing Outcomes (2)



LTM IPO Aftermarket Performance (1)



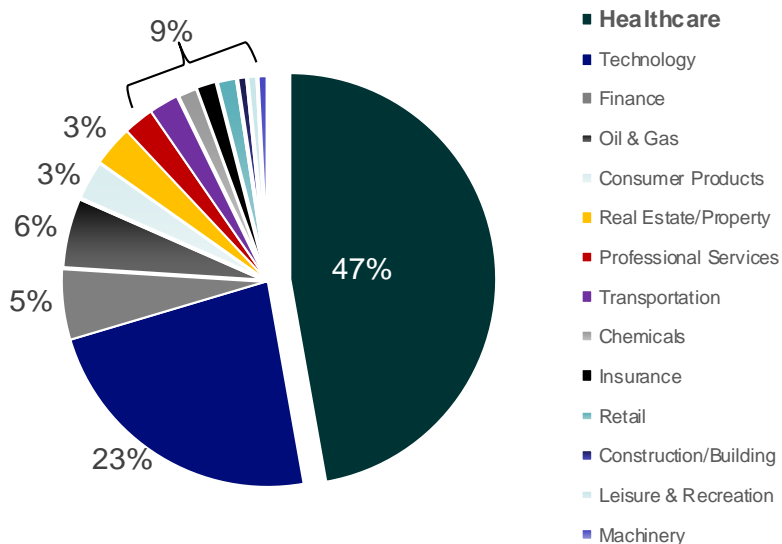
Source: Dealogic as of 11/02/2018.

1. Includes US IPOs greater than \$50 million. Excludes BDCs, SPACs, ADRs, IDS', CEFs and Chinese issuers.

2. Does not include IPOs withdrawn due to a merger / acquisition.

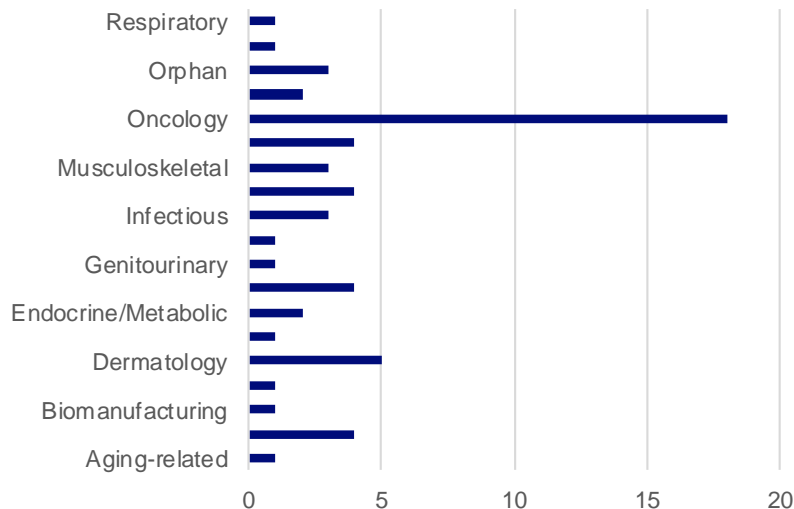
Initial Public Offering Themes: 2018 YTD

IPOs by Sector: 2018

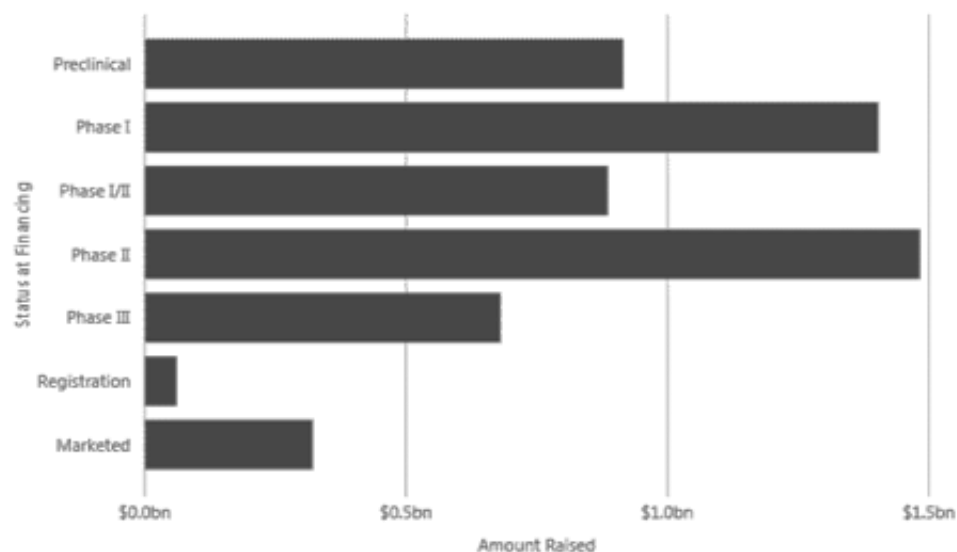


- Healthcare has been the dominant sector in the new issue market
 - Biotech is the leading vertical within Healthcare
- Driven by boom in private biotech financings, with crossovers providing backstops for deals
- Oncology still serves as largest vertical
- 2017-18 biggest IPO window since 2014
- Recent deals have shown weaker pricing outcomes
- Recent volatility in the market weighing on aftermarket performance for the year

Verticals within Biotechnology



Lead Phase of Development at IPO



Biotech / Biopharma IPOs: YTD

Biotech / Biopharma IPOs Greater than \$25mm

Pricing Date	Issuer	Deal Size (\$mm)	Offering as % of Mkt Cap	Pricing Relative to Range	% Change File to Offer	% Change Offer to				Bookrunner(s)	Crossover Round?	Crossover Date	Crossover Proceeds (\$m)	Insider Part. %	Therapeutic Category	Lead Ph At Deal
						1 Day	7 Days	30 Days	Current							
10/30/18	Orchard Rx Ltd	\$225	17%	Within	(6.7%)	0.0%			0.0%	JPM; GS; COWEN	Y	08/13/18	10	0%	Gene/Cell Therapy	Marketed
10/30/18	Twist Bioscience Corp	\$70	19%	Within	(6.7%)	0.0%			0.7%	JPM; COWEN	Y	04/02/18	10	43%	Biomanufacturing	Marketed
10/26/18	Gamida Cell Ltd	\$50	30%	Below	(42.9%)	5.5%	29.3%		29.3%	BMOCM; RBC	Y	06/19/17	40	60%	Oncology	Ph III
10/18/18	LogicBio Therapeutics Inc	\$70	32%	Below	(23.1%)	15.0%	13.7%		13.7%	JEFF; BAR; WBLR	Y	06/27/17	45	43%	Gene Therapy	Preclinical
10/17/18	PhaseBio Pharmaceuticals Inc	\$46	39%	Below	(61.5%)	0.0%	1.2%		1.2%	CITI; COWEN; STFL	Y	09/05/18	34	54%	Cardiovascular	Ph II
10/17/18	Osmotica Pharmaceuticals plc	\$54	13%	Below	(53.3%)	16.4%	24.0%		24.0%	JEFF; BAR; RBC; WLF	N			24%	Drug delivery	Marketed
10/12/18	Equillium Inc	\$65	28%	Within	(6.7%)	0.0%	7.4%		7.4%	JEFF; LEER; STFL	N			0%	Inflammation	Ph I
10/10/18	Allogene Therapeutics Inc	\$373	16%	Within	5.9%	38.9%	53.8%		53.8%	GS; JPM; COWEN; JEFF	Y	04/19/18	411	0%	Oncology	Ph I
10/03/18	Kodiak Sciences Inc	\$90	25%	Below	(28.6%)	1.6%	(2.1%)	(2.1%)	(2.1%)	MS; BOAML; BAR	Y	04/26/18	33	69%	Ophthalmology	Ph I
09/27/18	Gritstone Oncology Inc	\$100	23%	Within	7.1%	(5.1%)	27.8%	12.2%	27.8%	GS; COWEN; BAR	Y	09/07/17	92	35%	Oncology	Preclinical
09/26/18	Urovant Sciences Ltd	\$140	33%	Within	(6.7%)	(16.8%)	(34.4%)	(21.1%)	(34.4%)	JPM; JEFF; COWEN	N			0%	Genitourinary	Ph III
09/26/18	Sutro Biopharma Inc	\$85	25%	Within	0.0%	1.3%	(19.3%)	(9.7%)	(19.3%)	COWEN; PJ	Y	07/26/18	85	35%	Oncology	Ph I
09/26/18	Arvinas Inc	\$120	23%	Within	6.7%	0.3%	10.8%	0.3%	10.8%	GS; CITI; PJ	Y	03/29/18	55	25%	Autoimmune	Preclinical
09/25/18	Entasis Therapeutics Holdings In	\$75	38%	Below	(11.8%)	(28.9%)	(54.7%)	(57.5%)	(54.7%)	CS; BMOCM	Y	09/05/17	32	67%	Infectious	Ph II
09/20/18	Y-mAbs Therapeutics Inc	\$96	18%	Within	6.7%	50.0%	58.6%	34.4%	58.6%	BOAML; COWEN	Y	11/29/17	80	31%	Oncology	Ph II
09/13/18	Principia Biopharma Inc	\$106	28%	Within	6.3%	92.1%	40.7%	47.6%	40.7%	BOAML; LEER; WLF	Y	08/04/15	66	25%	Autoimmune	Ph II
08/13/18	Aridis Pharmaceuticals Inc	\$29	26%	Within	(7.1%)	0.0%	(5.9%)	(2.0%)	(5.9%)	CANTOR	N			86%	Infectious	Ph II
08/09/18	Vaccinex Inc	\$40	29%	Within	(11.1%)	(4.2%)	(45.8%)	(18.1%)	(45.8%)	OPCO; BTIG	N			75%	Oncology	Ph II
07/25/18	Liquidia Technologies Inc	\$50	30%	Within	0.0%	0.9%	78.2%	52.5%	78.2%	JEFF; COWEN	Y	02/20/18	54	60%	Respiratory	Ph III
07/24/18	Aquestive Therapeutics Inc	\$68	18%	Within	0.0%	7.0%	15.5%	6.2%	15.5%	BMOCM; RBC	N			29%	Neurology	Marketed
07/19/18	Replimune Group Inc	\$101	22%	Within	0.0%	1.1%	(6.2%)	16.3%	(6.2%)	JPM; LEER; BMOCM	Y	08/04/17	55	0%	Oncology	Preclinical
07/18/18	Constellation Pharmaceuticals In	\$60	16%	Within	0.0%	(23.3%)	(58.5%)	(30.3%)	(58.5%)	JPM; JEFF; BMOCM	Y	04/09/18	100	50%	Oncology	Ph II
07/18/18	Allakos Inc	\$148	18%	Above	12.5%	73.6%	188.1%	116.2%	188.1%	GS; JEFF	Y	12/15/17	142	24%	Inflammation	Ph II
07/18/18	Rubius Therapeutics Inc	\$277	14%	Above	9.5%	6.7%	(21.3%)	(7.4%)	(21.3%)	JPM; MS; JEFF; LEER	Y	03/01/18	101	0%	Autoimmune	Preclinical
07/17/18	Crinetics Pharmaceuticals Inc	\$117	26%	Within	6.3%	44.2%	54.9%	81.2%	54.9%	JPM; LEER; PJ	Y	03/13/18	65	26%	Endocrine/Metabolic	Ph I
06/28/18	Neuronetics Inc	\$94	33%	Above	13.3%	56.5%	45.2%	51.2%	45.2%	PJ; WBLR	Y	06/06/17	15	0%	Neurology	Marketed
06/27/18	Translate Bio Inc	\$122	21%	Within	0.0%	(11.4%)	(54.4%)	10.8%	(54.4%)	CITI; LEER; EVR	Y	01/04/17	51	41%	Gene/Cell Therapy	Ph I/II
06/27/18	Forty Seven Inc	\$113	23%	Within	6.7%	(5.9%)	(21.4%)	1.6%	(21.4%)	MS; CS	Y	10/17/17	75	0%	Oncology	Ph I/II
06/27/18	Tricida Inc	\$222	29%	Above	11.8%	36.8%	47.2%	28.2%	47.2%	GS; JPM; COWEN	Y	11/08/17	58	20%	Renal	Ph III
06/26/18	Neon Therapeutics Inc	\$100	22%	Within	0.0%	(6.3%)	(56.9%)	(23.4%)	(56.9%)	MS; BOAML; MIZ	Y	12/05/17	106	35%	Oncology	Ph I
Average		\$107	23%		-2.7%	14.3%	14.8%	20.6%	9.1%		Yes	46	\$73	30.93%		
Median		\$95	23%		0.0%	5.3%	9.1%	6.5%	0.4%		No	14	\$63	35.1%		

Source: Dealogic as of 11/02/2018.

1. Includes recent US IPOs greater than \$25mm. Excludes SPACs, BDCs, IDS, and CEFs

Biotech / Biopharma IPOs: YTD (cntd)

Biotech / Biopharma IPOs Greater than \$25mm

Pricing Date	Issuer	Deal Size (\$mm)	Offering as % of Mkt Cap	Pricing Relative to Range	% Change File to Offer	% Change Offer to				Crossover Round?	Crossover Date	Crossover Proceeds (\$m)	Insider Part. %	Therapeutic Category	Lead Ph At Deal	
						1 Day	7 Days	30 Days	Current							
06/21/18	ElectroCore LLC	\$78	18%	Within	0.0%	32.3%	16.4%	2.2%	(30.6%)	EVR; CANTOR; JMPSEC	Y	11/29/17	71	26%	Neurology	Marketed
06/21/18	Autolus Therapeutics Ltd	\$173	23%	Within	6.3%	47.1%	54.0%	48.2%	86.8%	GS; JEFF	Y	09/25/17	80	35%	Oncology	Ph I/II
06/20/18	Kezar Life Sciences Inc	\$86	27%	Within	0.0%	18.3%	14.9%	7.5%	66.4%	JEFF; COWEN; WLF; WBLR	Y	06/15/17	50	43%	Autoimmune	Ph I
06/20/18	Xeris Pharmaceuticals Inc	\$98	29%	Within	0.0%	34.8%	32.9%	39.0%	54.8%	JEFF; LEER; RBC; MIZ	Y	12/01/17	85	40%	Endocrine/Metabolic	Ph III
06/20/18	Aptinyx Inc	\$118	20%	Within	6.7%	26.3%	39.0%	26.3%	63.6%	JPM; COWEN; LEER; BMOCM	Y	12/18/17	70	38%	Neurology	Ph II
06/20/18	AvroBio Inc	\$115	23%	Above	11.8%	64.2%	60.7%	97.6%	54.7%	MS; COWEN; WLF; WMS	Y	01/01/18	61	50%	Orphan	Ph II
06/20/18	Magenta Therapeutics Inc	\$100	19%	Within	0.0%	(3.2%)	(6.4%)	0.0%	(43.3%)	JPM; GS; COWEN	Y	04/09/18	52	40%	Gene/Cell therapy	Ph I/II
06/19/18	Eidos Therapeutics Inc	\$122	17%	Within	6.3%	36.0%	18.4%	26.4%	(24.6%)	JPM; BOAML; BAR	Y	04/04/18	64	50%	Orphan	Ph II
06/14/18	Verrica Pharmaceuticals Inc	\$86	20%	Within	0.0%	16.7%	33.7%	25.8%	(10.9%)	BOAML; JEFF; COWEN	Y	02/01/18	20	40%	Dermatology	Ph III
06/07/18	MeiraGTx Holdings plc	\$75	18%	Within	0.0%	0.0%	(3.3%)	(14.5%)	(12.1%)	BOAML; BAR; EVR	Y	10/01/15	107	53%	Oncology	Ph I/II
05/24/18	Iterum Therapeutics plc	\$80	44%	Below	(13.3%)	(1.2%)	(12.0%)	(6.4%)	(53.5%)	LEER; RBC	Y	02/01/18	32	44%	Infectious	Ph II
05/23/18	Scholar Rock Holding Corp	\$75	22%	Within	0.0%	10.7%	17.9%	54.4%	70.4%	JEFF; COWEN; BMOCM	Y	12/22/17	47	0%	Musculoskeletal	Preclinical
05/23/18	Kiniksa Pharmaceuticals Ltd	\$153	18%	Within	0.0%	8.2%	(4.4%)	6.8%	18.3%	GS; JPM	Y	02/01/18	200	40%	Inflammation	Ph II
05/08/18	Evelo Biosciences Inc	\$85	17%	Within	0.0%	1.6%	0.0%	(5.9%)	(39.2%)	MS; COWEN; BMOCM	Y	02/09/18	82	47%	Inflammation	Ph I
05/04/18	Aslan Pharmaceuticals Ltd	\$42	19%	Above		(20.2%)	(7.5%)	21.1%	(17.6%)	LEER; PJ	N			0%	Oncology	Ph II
05/02/18	Unity Biotechnology Inc	\$85	12%	Within	0.0%	(2.1%)	(5.4%)	(11.1%)	(31.1%)	GS; MS; CITI	Y	03/19/18	60	0%	Musculoskeletal	Preclinical
04/25/18	Eloxx Pharmaceuticals Inc	\$58	15%	Below	(6.7%)	19.0%	37.9%	50.9%	35.6%	CITI; PJ	N			0%	Orphan	Ph I
04/18/18	Surface Oncology Inc	\$108	26%	Within	7.1%	(11.1%)	(11.1%)	(4.7%)	(46.7%)	GS; COWEN; EVR	N			23%	Oncology	Ph I
04/18/18	MorphoSys AG	\$239	6%	Below	(3.6%)	5.1%	1.2%	5.8%	7.3%	GS; JPM; LEER	N			0%	Dermatology	Ph III
03/28/18	Unum Therapeutics Inc	\$72	20%	Within	(7.7%)	(7.4%)	(10.4%)	(1.8%)	(36.3%)	MS; COWEN	Y	06/01/15	65	53%	Oncology	Ph I
03/27/18	Homology Medicines Inc	\$166	25%	Within	6.7%	16.6%	3.1%	29.0%	25.6%	BOAML; COWEN; EVR	Y	09/08/17	94	50%	Hematology	Preclinical
03/14/18	Arcus Biosciences Inc	\$138	19%	Within	7.1%	13.3%	18.1%	1.8%	(27.9%)	CITI; GS; LEER	Y	11/03/17	107	40%	Oncology	Ph I
03/08/18	BioXcel Therapeutics Inc	\$60	35%	Within	(8.3%)	0.0%	(1.4%)	0.5%	(50.2%)	BAR; UBS; BMOCM	N			0%	Oncology	Ph I/II
02/07/18	Evolus Inc	\$61	21%	Within	(7.7%)	(4.2%)	(4.2%)	0.6%	36.1%	CANTOR; MIZ	N			0%	Dermatology	Ph III
01/31/18	Sol-Gel Technologies Ltd	\$86	35%	Within	0.0%	13.7%	(10.3%)	(8.7%)	(41.8%)	JEFF; BMOCM	N			0%	Dermatology	Ph II
01/25/18	Solid Biosciences Inc	\$144	23%	Within	(5.9%)	41.4%	70.7%	84.8%	127.5%	JPM; GS; LEER	Y	03/30/17	50	40%	Musculoskeletal	Ph I/II
01/25/18	ARMO BioSciences Inc	\$147	26%	Above	13.3%	74.9%	77.0%	170.9%	194.0%	JEFF; LEER; BMOCM	Y	08/29/17	67	40%	Oncology	Ph III
01/25/18	resTORbio Inc	\$98	21%	Within	0.0%	12.5%	11.7%	39.0%	(23.9%)	BOAML; LEER; EVR	Y	11/30/17	40	41%	Aging-related	Ph II
01/24/18	Eyenovia Inc	\$27	28%	Within	(9.1%)	(0.8%)	(4.1%)	(4.5%)	(62.2%)	LTC; RCP	N			19%	Ophthalmology	Ph II
01/24/18	Menlo Therapeutics Inc	\$137	32%	Above	13.3%	68.9%	116.5%	104.3%	(59.3%)	JEFF; PJ; GUGPAR	Y	07/18/17	50	47%	Dermatology	Ph II
Average		\$107	23%		-2.7%	14.3%	14.8%	20.6%	9.1%		Yes	46	\$73	30.93%		
Median		\$95	23%		0.0%	5.3%	9.1%	6.5%	0.4%		No	14	\$63	35.1%		

Source: Dealogic as of 11/02/2018.

1. Includes recent US IPOs greater than \$25mm. Excludes SPACs, BDCs, IDs, and CEFs

Investment Banking Activity: 2018 YTD

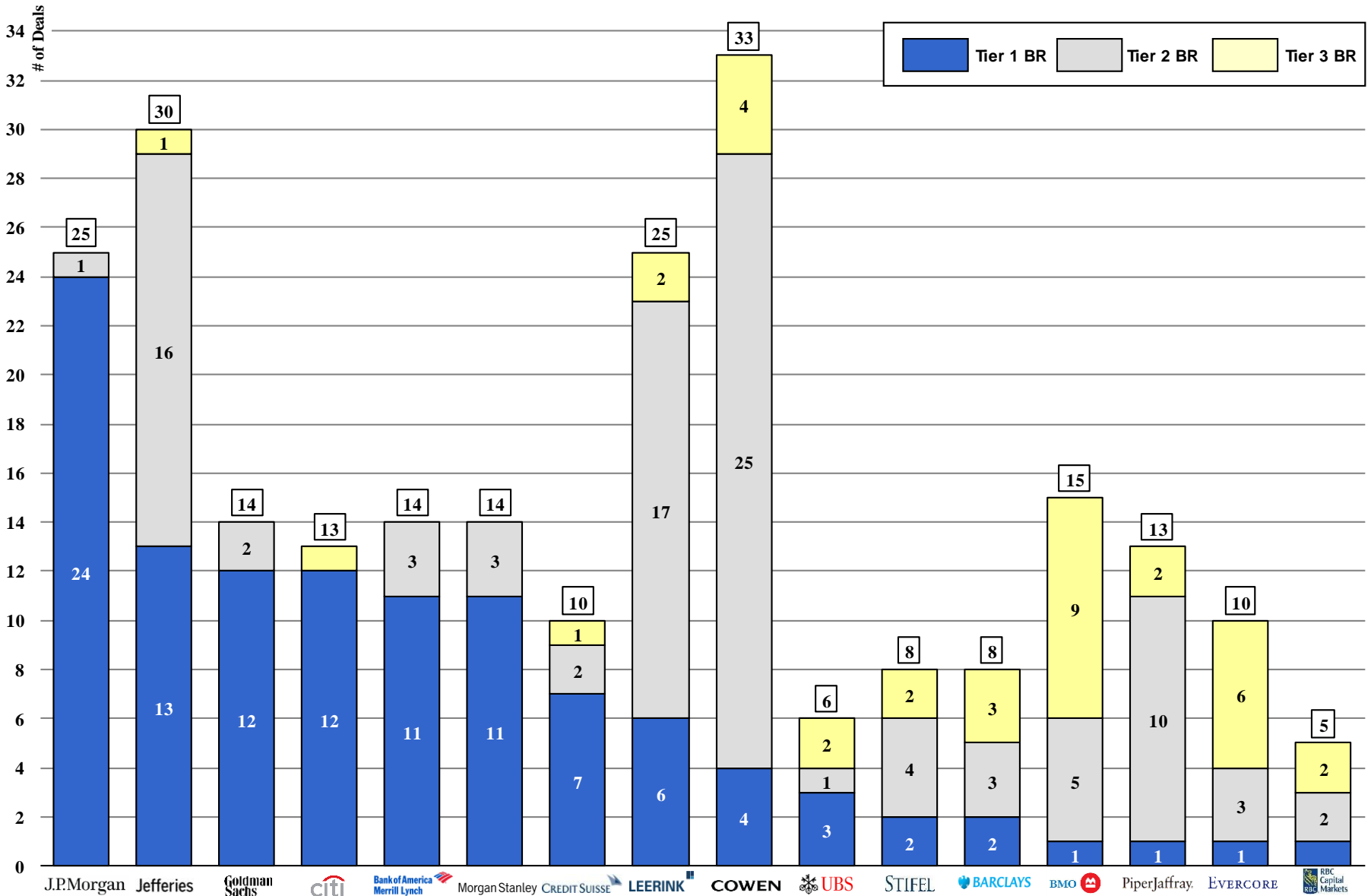
Underwriters	IPOs Underwritten	Total Proceeds (mm)	Average Proceeds (mm)
Cowen	21	\$2,660	\$127
Jefferies	16	\$1,951	\$122
J.P. Morgan	15	\$2,426	\$162
Leerink Partners	13	\$1,722	\$132
Goldman Sachs	12	\$1,965	\$164
Wedbush	11	\$1,119	\$102
BMO Capital Markets	10	\$773	\$77
BofA Merrill Lynch	10	\$1,227	\$123
Morgan Stanley	8	\$936	\$117
JMP Securities	7	\$692	\$99
Barclays Capital	6	\$485	\$81
BTIG	5	\$529	\$106
Citigroup	5	\$511	\$102
Evercore ISI	5	\$568	\$114
Oppenheimer	5	\$363	\$73
Wells Fargo	5	\$549	\$110
Chardan Capital Markets	4	\$389	\$97
Needham	4	\$226	\$56
Piper Jaffray	4	\$444	\$111
RBC Capital Markets	4	\$282	\$70
William Blair	4	\$680	\$170

Commentary

- **Top 10 Banks comprise 71% of Underwriting roles**
- **Banks often selected based on certain areas of strength**
 - Investment Banking
 - Research
 - Equity Capital Markets
- **Bookrunners vs Co-Managers**
- **Sector has formed its own group of 'Bulge-Brackets'**
- **Larger banks beginning to underwrite smaller deals**

Biotech / Biopharma Tiered League Table

Bookrunners: 2016 - Present





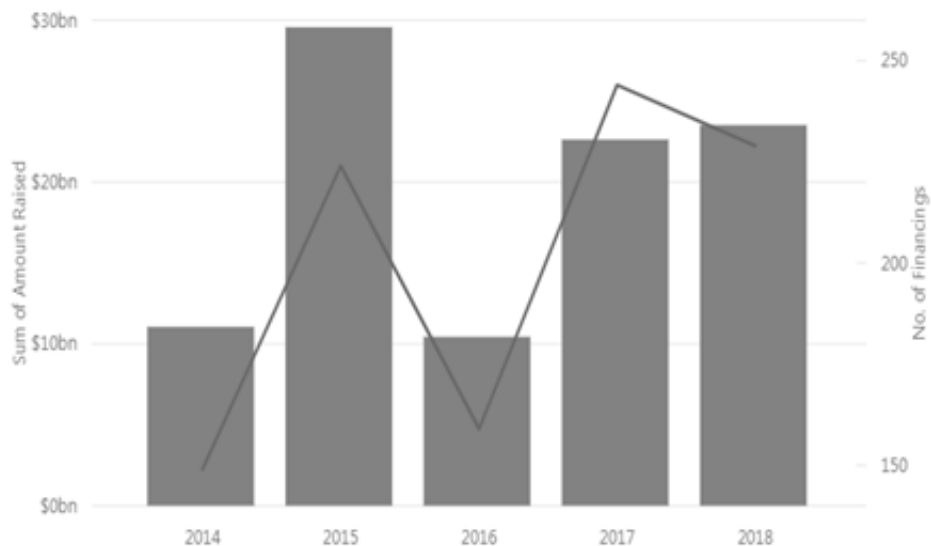
SOLEBURY
CAPITAL

SOLEBURY
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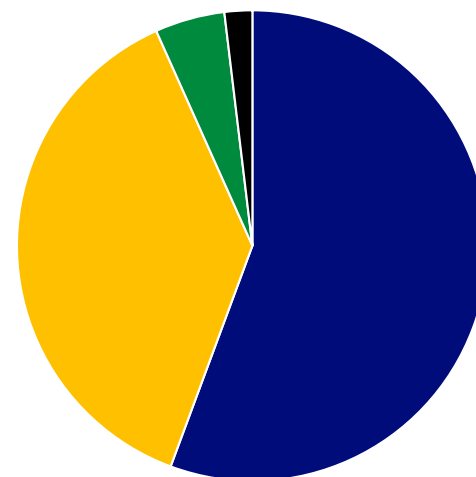
Follow-on Offerings

Follow-On Offering Themes: 2018 YTD

Proceeds and Number of Transactions



Total Raised by Company Type



- Mid-Cap Biopharma (\$1-\$50 billion)
- Small-Cap Biopharma (<\$1 billion)
- Medical Devices and Diagnostics
- Tools, Services, and Manufacturing

- Many transactions are momentum/catalyst based
- Money-weighted Average discount for the year hovering around 3.5%, although skewed
- Different and larger group of banks active
- FOs in the past 6M are averaging a return from offer to current of (7%)
- Significant IR work must be done between financings

Biotech / Biopharma Follow-ons: Prior 6M

Biotech / Biopharma FOs Greater than \$50mm ⁽¹⁾

Pricing		First Follow-On	Deal Size (\$MM)	Offering as:		% Change		% Change Offer to			Bookrunner(s)
Date	Issuer			% Mkt Cap	# ADTV	F / O	LT / O	1 Day	7 Days	Current	
10/29/18	Clementia Pharmaceuticals Inc	N	\$70	13.7%	61.5x	(4.0%)	(4.0%)	(0.6%)		6.2%	MS; LEER
10/23/18	Proteostasis Therapeutics Inc	N	\$74	21.0%	3.5x	(6.3%)	(8.8%)	(20.7%)	(10.5%)	(0.2%)	LEER; PJ; CANTOR
10/18/18	Krystal Biotech Inc	N	\$69	23.1%	78.0x	(6.6%)	(3.2%)	13.5%	(0.7%)	17.5%	COWEN; WBLR; CANTOR
10/17/18	Aclaris Therapeutics Inc	N	\$93	19.3%	39.1x	(11.7%)	(11.7%)	13.2%	7.5%	12.9%	LEER; EVR
10/11/18	Iovance Biotherapeutics Inc	N	\$252	20.9%	17.3x	0.0%	0.0%	19.7%	9.5%	(3.5%)	JEFF
10/10/18	Audentes Therapeutics Inc	N	\$151	11.9%	18.0x	(21.0%)	(2.7%)	(6.5%)	(2.5%)	1.4%	BOAML; JPM; COWEN
10/03/18	Kala Pharmaceuticals Inc	Y	\$71	23.1%	29.5x	(11.1%)	(11.1%)	(5.0%)	1.2%	(5.7%)	JPM; BOAML; JEFF
10/02/18	Epizyme Inc	N	\$86	11.2%	23.0x	(7.3%)	(7.3%)	4.2%	5.2%	(6.4%)	JEFF
09/27/18	Aldeyra Therapeutics Inc	N	\$72	19.2%	57.6x	3.0%	(4.2%)	0.4%	(8.7%)	(20.7%)	CITI; CANTOR
09/25/18	AnaptysBio Inc	N	\$239	9.5%	8.7x	(7.3%)	0.0%	6.0%	(1.0%)	(13.1%)	CS; JPM; JEFF
09/20/18	Crispr Therapeutics AG	N	\$200	7.9%	5.8x	(8.5%)	(3.0%)	(6.3%)	(2.2%)	(25.1%)	GS; PJ; BAR; WLF
09/20/18	Viking Therapeutics Inc	N	\$176	13.2%	4.9x	(5.9%)	(2.5%)	(1.6%)	(3.6%)	(17.3%)	WBLR; STRH; RJ
09/20/18	Fate Therapeutics Inc	N	\$144	16.0%	27.2x	(3.8%)	(3.8%)	7.9%	16.1%	0.8%	JEFF; PJ; WLF
09/20/18	Molecular Templates Inc	N	\$52	24.5%	NM	(12.0%)	(5.0%)	0.4%	(2.9%)	(20.2%)	COWEN; EVR; UBS
09/18/18	G1 Therapeutics Inc	N	\$207	9.0%	17.8x	(9.6%)	(4.7%)	0.0%	(2.4%)	(30.9%)	JPM; COWEN
09/12/18	Xenon Pharmaceuticals Inc	N	\$63	17.7%	21.2x	(1.8%)	(1.8%)	(0.4%)	(4.6%)	(24.1%)	JEFF; STFL
09/11/18	Pacific Biosciences of California Inc	N	\$69	10.2%	16.6x	(9.6%)	(7.0%)	14.4%	19.1%	6.1%	COWEN; CANTOR
09/11/18	Endocyte Inc	N	\$201	12.7%	10.3x	(2.1%)	(5.4%)	2.2%	(2.9%)	27.7%	JEFF; WLF; RBC
09/06/18	Dicerna Pharmaceuticals Inc	N	\$115	14.3%	27.7x	(18.1%)	0.0%	13.8%	27.7%	3.0%	CITI; LEER; STFL
09/06/18	ProQR Therapeutics NV	N	\$104	16.8%	80.6x	(10.3%)	(2.2%)	0.3%	17.1%	40.8%	CITI; EVR; RBC
09/06/18	KalVista Pharmaceuticals Inc	N	\$78	28.4%	96.6x	(5.1%)	(5.1%)	6.8%	(4.9%)	17.1%	JEFF; STFL; CANTOR
08/09/18	Regenxbio Inc	N	\$202	8.6%	5.5x	(7.9%)	(2.5%)	3.7%	0.0%	7.6%	MS; BOAML; BAR
08/07/18	Progenics Pharmaceuticals Inc	N	\$75	9.9%	6.7x	(7.6%)	(7.6%)	(0.4%)	(4.7%)	(36.4%)	JEFF; CS
08/07/18	Zogenix Inc	N	\$312	14.4%	7.4x	(7.5%)	(0.8%)	(1.1%)	(6.5%)	(15.0%)	BOAML; LEER; STFL
08/01/18	BioCryst Pharmaceuticals Inc	N	\$58	9.5%	14.5x	(0.4%)	(0.4%)	10.4%	16.2%	36.4%	JPM; JEFF
08/01/18	TherapeuticsMD Inc	N	\$75	6.2%	7.3x	(2.3%)	(1.5%)	2.8%	2.6%	(2.6%)	GS; CANTOR
07/24/18	bluebird bio Inc	N	\$633	7.2%	3.9x	(8.3%)	(0.7%)	6.2%	(4.7%)	(19.9%)	GS; BOAML; JPM; COWEN
07/24/18	Reata Pharmaceuticals Inc	N	\$248	13.7%	14.1x	(5.9%)	(6.4%)	8.7%	(2.6%)	(12.0%)	JEFF; LEER; STFL; CANTOR
Mean			\$143	14.8%	27.1x	-7.5%	-4.2%	3.9%	4.9%	(7.5%)	
Median			\$99	13.2%	16.9x	-6.7%	-3.3%	3.0%	0.0%	(7.3%)	

Source: Dealogic as of 11/2/2018

1. Includes US marketed follow-ons greater than \$50 million. Excludes IDS' and CEFs

Biotech / Biopharma Follow-ons: Prior 6M (cntd)

Biotech / Biopharma FOs Greater than \$50mm ⁽¹⁾

Pricing Date	Issuer	First Follow-On	Deal Size (\$MM)	Offering as:		% Change		% Change Offer to			Bookrunner(s)
				% Mkt Cap	# ADTV	F / O	LT / O	1 Day	7 Days	Current	
07/18/18	AC Immune SA	N	\$100	12.9%	68.9x	(4.8%)	(0.3%)	21.8%	40.0%	(25.8%)	JEFF; LEER; UBS
07/18/18	Evolus Inc	Y	\$92	15.8%	9.6x	(20.4%)	(6.2%)	(1.3%)	0.2%	(22.9%)	CANTOR; MIZ
07/13/18	Spero Therapeutics Inc	Y	\$75	27.7%	78.0x	(28.1%)	(5.9%)	(6.4%)	(11.4%)	(32.7%)	COWEN; STFL; CANTOR
07/12/18	CytomX Therapeutics Inc	Y	\$144	12.7%	12.1x	(0.5%)	(3.2%)	(6.1%)	0.0%	(39.8%)	GS; CITI; BAR
07/12/18	Natera Inc	Y	\$104	8.5%	11.1x	(4.9%)	(2.8%)	9.4%	14.4%	10.8%	JPM; MS; COWEN
07/12/18	Myovant Sciences Ltd	Y	\$80	5.3%	60.2x	(6.6%)	(2.4%)	(6.7%)	(9.8%)	(2.7%)	JPM; GS; BAR
07/11/18	Assembly Biosciences Inc	N	\$166	18.1%	22.4x	(9.5%)	(1.9%)	16.4%	18.8%	(33.9%)	JEFF; LEER; WBLR; MIZ
07/11/18	ArQule Inc	N	\$70	11.3%	5.2x	(10.6%)	(10.6%)	7.3%	(5.6%)	(28.6%)	LEER
06/28/18	Zafgen Inc	N	\$69	22.1%	53.2x	(11.8%)	(11.8%)	28.0%	39.1%	32.5%	COWEN; PJ
06/28/18	Kura Oncology Inc	N	\$77	11.9%	17.3x	(1.8%)	(1.8%)	3.3%	11.9%	(34.6%)	LEER
06/20/18	Rhythm Pharmaceuticals Inc	Y	\$174	19.5%	36.4x	(8.3%)	0.0%	24.6%	28.2%	9.4%	MS; BOAML; COWEN
06/20/18	Kindred Biosciences Inc	N	\$51	15.1%	35.3x	(5.0%)	(5.0%)	10.5%	15.3%	56.3%	CANTOR
06/19/18	Galmed Pharmaceuticals Ltd	Y	\$75	22.9%	6.5x	(8.5%)	(4.4%)	(5.3%)	(12.7%)	(31.1%)	STFL; STRH; CANTOR
06/19/18	ObsEva SA	Y	\$78	12.2%	50.1x	(13.9%)	0.0%	(7.1%)	(4.6%)	7.1%	JPM; CS; JEFF
06/13/18	Immunomedics Inc	N	\$317	7.2%	5.1x	0.7%	(1.8%)	1.4%	1.4%	0.1%	MS; COWEN; JEFF
06/11/18	Kadmon Holdings Inc	N	\$101	27.6%	91.9x	(1.5%)	(1.5%)	11.5%	15.8%	(22.7%)	JEFF
06/07/18	Viking Therapeutics Inc	N	\$78	14.4%	2.5x	(0.9%)	(0.9%)	7.3%	24.0%	70.0%	WBLR
06/07/18	Mirati Therapeutics Inc	N	\$123	9.8%	6.8x	0.0%	0.0%	18.4%	24.1%	0.5%	COWEN; BAR; STRH
06/06/18	Deciphera Pharmaceuticals Inc	Y	\$198	12.7%	48.6x	4.4%	(3.7%)	(10.3%)	(4.2%)	(46.6%)	JPM; PJ
06/06/18	ImmunoGen Inc	N	\$173	10.2%	7.1x	(4.1%)	(3.4%)	(6.0%)	(6.0%)	(46.0%)	JPM; GS; COWEN
06/06/18	Madrigal Pharmaceuticals Inc	N	\$440	9.1%	3.7x	1.3%	(2.8%)	(7.9%)	2.7%	(34.0%)	GS
06/06/18	Zymeworks Inc	Y	\$98	18.3%	40.3x	(6.7%)	(6.7%)	3.9%	7.9%	(18.4%)	CITI; WLF
06/06/18	OptiNose Inc	Y	\$128	13.7%	50.1x	(2.1%)	(3.8%)	1.1%	0.9%	(51.0%)	JEFF; PJ; BMOCM; RBC
05/31/18	Vericel Corp	N	\$75	13.2%	7.2x	(6.8%)	(3.3%)	10.8%	(2.7%)	(8.2%)	LEER; BTIG
05/23/18	Melinta Therapeutics Inc	N	\$123	35.4%	NM	(31.5%)	(19.6%)	6.0%	29.0%	(42.6%)	JPM; JEFF
05/22/18	Ardelyx Inc	N	\$58	20.4%	47.1x	(29.2%)	(12.1%)	(2.5%)	0.0%	(24.3%)	JEFF; LEER
05/22/18	MyoKardia Inc	N	\$194	9.7%	16.1x	1.3%	(2.7%)	(1.5%)	(4.1%)	13.2%	JPM; BOAML; CS; WLF
05/22/18	Coherus BioSciences Inc	N	\$86	8.5%	10.1x	(4.9%)	(5.8%)	5.5%	4.8%	(20.0%)	JPM; CITI
Mean			\$143	14.8%	27.1x	-7.5%	-4.2%	3.9%	4.9%	(7.5%)	
Median			\$99	13.2%	16.9x	-6.7%	-3.3%	3.0%	0.0%	(7.3%)	

Source: Dealogic as of 11/2/2018

1. Includes US marketed follow-ons greater than \$50 million. Excludes IDS' and CEFs

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